TOTAL QUALITY MANAGEMENT

The way to achieve quality excellence.

Abstract

This paper is to provide a general understanding of Total Quality Management, a concept that is aimed at ensuring quality with continuous improvement. It takes Oakland's "Total Quality Management with text and cases, 2003" as a basis.

Arikkök Merih, 2016

MerihArikkok@kamk.fi

Contents

Introduction 2
What is quality? 2
What is Total Quality Management? 4
Importance of the leadership and commitment 4
Leaving the conventional 4
Commitment 5
Managing the change within the organization 5
Partnerships and ensuring quality 6
The Six Sigma 6
Benchmarking 7
Lean Production and Just-in-Time (JIT) Production 8
Conclusion 9

Introduction

This paper is to provide a general understanding of Total Quality Management, a concept that is aimed at ensuring quality with continuous improvement. It takes Oakland's "Total Quality Management with text and cases, 2003" as a basis and presents the main points of quality, Total Quality Management, quality standards, benchmarking and the lean production method. It shows the important aspects of TQM, challenges in applying TQM and important factors that affect success. It includes general knowledge, assumptions and author's own interpretations. It should give the reader a general overview of total quality management and its main points which will provide a base for deeper learning.

What is quality?

In order to make a business viable it has to be built upon a certain set of values which will promote the business, assure customers that it's the right choice and attract new customers while retaining the existing ones. Quality is one of the most important aspects of a business or a product as it could be associated with many factors such reliability, delivery, usability, and an acceptable price. Quality can have different meanings for different customers as it could also reflect many different facts in one term. A reputation for quality is an invaluable asset for a company and it takes time to build it however it can be ruined pretty easily. Swiss are known for their reliable clock mechanisms, Germans are known for their engineering and cars, Luxemburg is knows for its reliable and discreet financial services. When we look at those examples we see that their reputation for quality comes from years of work and consistence. One interesting example is that Japanese manufacturing industry and exports are once known as very low quality and now are known for reliability, efficiency, and innovation. The management of the competitive weapons, such as quality, can be learned like and other skill, and used to turn round a poor reputation, in time.[1] Japan successfully did this.

Quality is simply meeting the customer requirements[2], and as mentioned earlier quality can be associated with many different aspects of a product or service. Although quality is defined by the customers' requirements, a quality product could also mean meeting the minimum specifications set to get a job done which could occur in the construction sector, health care and aviation etc.

[1] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p4
[2] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p5

Meeting the customers' requirements means that the company is offering a quality product which is the foundation of successful business operations. Companies consistently offering quality products often have a loyal customer base who keep purchasing from the same supplier while offering the products/ services to their peers helping the company add new customers to its base. Apple could be given as an example as they are known for their quality and innovation which has a loyal customer base who purchase their products as soon as they are out seeing the company as reliable and consistently delivering innovative products that suit their needs.

Let's take an online tailored suits company as an example. The customer purchases a suit online and receives it at home delivered by a courier. In fact, the company purchases the canvas from its supplier, its tailors prepare the suit based on the measurement from the customer, quality check is performed, customer is billed, courier picks it up from the warehouse and delivers the product to the customer's address. There is a series of quality chains of customers and suppliers here and there is a great risk that it may be broken somewhere. What happens if the order administration personnel places the wrong address sticker on the wrong package? The concept of internal and external customer-supplier chains form the core of total quality management.[3]

In order to be successful, quality has to be managed. Every player in the quality chain should clearly know their customers, what they require, if the quality targets can be met and their affects on the quality chain in case they don't meet the expectations in their specific tasks.

In "Total Quality Management text with cases" Oakland argues that companies frequently practice *detection* which is aimed at detecting the bad product before it hits the customer but not *quality control.* Instead of checking the quality of the final product at the end, companies may apply quality control at every stage of the production thus move from detection towards prevention which will improve the quality, save time and resources for the company.
Quality control is essentially the activities and techniques employed to achieve and maintain the quality of a product, process, or service while quality assurance is broadly the prevention of quality problems through planned and systematic activities including documentation. These will include the establishment of a good quality management system and the assessment of its adequacy, the audit of the operation of the system, and the review of the system itself.[4]

[3] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p5
[4] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p13

What is Total Quality Management?

TQM is a set of management practices throughout the organization geared to ensure the organization consistently meets or exceed customer requirements. [5]Based on Deming's and Duran's ideas described in "Total Quality Management text with cases" for how organizations could achieve success we can conclude that key to successful quality management passes through constantly striving for improvement, changing the classic mindset of applying out of date quality check measures everybody else does, modernizing the methods, and providing effective training for the staff. As you can see, conventional methods take us nowhere in ensuring quality and the future is in process innovation, out of the box thinking and seeking improvements not after the final product but during every stage of production.

As we spoke of the quality chain earlier, a successful TQM requires the participation and commitment of all players in the process, from the production employees up to the senior management. Culture plays a significant role when it comes to the TQM's success. The quality chains and the processes covered by them are at the heart of the TQM model.
In order for companies to assess themselves and describe what actions should be taken in order to achieve quality and to see how effective TQM is implemented a framework was needed. At the moment there are several well recognized quality award frameworks that are used to carry out self-assessment and to build an organization-wide approach quality leading to successful applications of TQM.

The new TQM model provides a simple framework for excellent quality performance and covers all necessary aspects of an organization. When we consider successful implementation of TQM we should ensure that strategies are in place, a performance measure framework is created such as a balanced scorecard, audits, reviews and benchmarking, quality management systems that strive for continuous improvement and that the people are fully aware of the goals.

Importance of the leadership and commitment

Leaving the conventional

Quality management cannot entirely be left to quality professionals or applied through traditional quality control techniques. These traditional techniques include inspectors, tight standards and

[5] Total Quality Management, YouTube, https://www.youtube.com/watch?v=OSA1q107IYg#action=share, (December 24,2016).

putting more pressure on the employees or even finding someone else to blame such as the quality control department. Quality management is an approach where full commitment is needed from the entire firm. In order for TQM to work effectively, the management should have a clear strategic overview of quality and guide the entire firm towards adopting TQM. TQM is more of a new mindset rather than a set of policies. Companies may need to invest time, financial resources and training for their existing staff especially if they have a strong organizational culture which could have a negative impact on the employees changing their attitude towards quality. For TQM, we need commitment from the senior management and the senior management may think that they do not need TQM or the company is too small to implement TQM. Implementation of TQM will prove useful if there are significant costs due to errors, defects and customer dissatisfaction, if there is a need for improved quality at the product design stage, the staff is not aware of how to prevent errors and the staff cannot identify the sources of problems, find solutions to them by working together. In this case, implementing TQM could be costly and painful at first but it will present significant gains on the long run for the entire firm.

Commitment

In order to increase business efficiency and product quality through TQM, the entire form should be committed from top to the toe. As the leaders of an organization, the senior management should show leadership and initiative and pass on the spirit down to the middle management who then will communicate the whole thing to their teams. This level of management also needs to ensure that the efforts and achievement of their subordinates obtain the recognition, attention and reward that they reserve.[6] Since TQM involves a significant amount of change in the attitudes of the employees and commitment, it is of paramount importance that everybody accepts their responsibilities in the process.

Managing the change within the organization

Change is hard for many and if it involves a whole organization then it requires significant amount of effort. The cultural change and acquisition of a new attitude towards successful implementation of TQM should be supported by everybody taking its power from a well drafted mission statement serving the purposes of good quality management. The mission will communicate the new philosophy to the employees and enable them to see the tangible goals ahead, taking a step towards good quality management through TQM. A clear, achievable mission is important.

[6] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p31

Partnerships and ensuring quality

Nowadays it is very rare that one company manages to produce an entire product at a single location unless it is a very simple product. There are many different materials and components involved in the production process which often have to be sourced from external manufacturers, vendors who manufacture them at different locations. This bears the risk of receiving materials of inconsistent quality and brings in additional inspection costs unless several frameworks are in place. Partnerships will prove beneficial as long as quality standards are defined clearly, the expectations are communicated to the supplier and both sides apply quality management systems as second nature. It is also very important that the suppliers see and understand how their materials are used by the company so that they thoroughly understand what the expectations are. It is beneficial to have a few suppliers than many however it is important to make sure that the supplier is able to provide materials up to the standards, at the right time, consistently. In order to minimize the risks and choose the most suitable suppliers a company may decide to require their partners to apply a quality management system that is run according to the International Standards Organization (ISO) 9000 series, perform regular audits to ensure consistent quality and improvement and communicate clear material specifications. ISO 9000 which has a wide usage is a set of standards and guidelines related to the quality management system. It doesn't replace TQM however is a part of it which brings benefits to the organization and the customer. TQM is about the whole organization and ISO 9000 could prove beneficial in the beginning of the quality management process since it requires less long term commitment and employee involvement.

The Six Sigma

In 1980s Six Sigma was developed in search of a better quality management. Six Sigma is a set of statistical tools adopted within the quality management to construct a framework for process improvement.[7] Six Sigma has evolved to become an extension to Total Quality Management (TQM).[8] General Electric defines Six Sigma as a highly disciplined process that helps them focus on developing and delivering near-perfect products and services.

[7] Goh and Xie, 2004; McAdam and Evans, 2004
[8] Green, 2006

Six Sigma revolves around a few key concepts that take the following into account:

Critical to Quality:	Attributes most important to the customer
Defect:	Failing to deliver what the customer wants
Process Capability:	What your process can deliver
Variation:	What the customer sees and feels
Stable Operations:	Ensuring consistent, predictable processes to improve what the customer sees and feels
Design for Six Sigma:	Designing to meet customer needs and process capability

Figure 1. http://www.ge.com/en/company/companyinfo/quality/whatis.htm[9]

Six Sigma helped Motorola realize powerful bottom-line results in their organization - in fact, they documented more than $16 Billion in savings as a result of applying Six Sigma.

Benchmarking

Continuous improvement and achieving better can happen only if the current performance is compared to previously defined standards. Benchmarking is a way of measuring performance where the current performance of the company is compared and scored towards a set of targets or competitors' performance could be taken as targets as well. Companies need benchmarking in order to see where they are, reach beyond their best and improve themselves. It is an essential part of total quality management. Since quality is about meeting the customers' requirements and the purpose of total quality management is creating an environment where continuous improvement takes place, benchmarking is the right approach towards identifying points to improve and improving one's own very best. As a managed process for change, benchmarking uses a disciplined structured approach to identify what needs to chance, how it can be changed, and the benefits of the change.[10] Benchmarking enables organizations to see where they are and how others are doing. It is a tool to analyze what can be improved by comparing own performance against a competitor or another organization doing similar tasks so that gaps can be identified and closed. In order to increase chances to find points to improve it is important to pick a stronger competitor to compare against.

[9] General Electric, http://www.ge.com/en/company/companyinfo/quality/whatis.htm, (December 26, 2016)
[10] John S. Oakland, Total Quality Management text with cases (Butterworth-Heinemann, 2003), p152

Based on the outcomes of the benchmarking process many results can be obtained though it is important to realize the fact that success depends on a lot of factors. Change is often hard to make and it requires serious consideration. In order for a change initiative to be successful the company should well analyze the processes that need change, ensure to have enough financial resources to supports the change, have enough human resources and commitment and prepare the company culturally. If these factors are not considered carefully and the company goes with the change anyway then the results will either be short-lived or unsuccessful.

Lean Production and Just-in-Time (JIT) Production

Lean production is basically doing more with less. Lean is a production practice that considers the expenditure of resources for any goal other than the creation of value for the end customer to be wasteful and thus a target for elimination; basically, more value with less work.[11] Lean production is a philosophy that is aimed at optimizing the time between the product order, production, and delivery. It achieves this by targeting to do a better job with less waste, less workforce effort, less space and basically less of everything. All this is about creating value customer and give less importance on non-relevant factors that are considered as waste.

Just -in-time production, here after JIT is a lean production method that aims to reduce waste and use less of everything to product quality, It is an essential practice when it comes to applying TQM and it reduces costs and time spent in production. In a company applying JIT a product is manufacture only if it is needed, when it is needed and in the exact quantities needed. This reduces the need for keeping inventory thus saving money and material stocks for the production process are replenished only when they are low. JIT brings efficiency to the entire production floor, reduces time and error risks. The only downside in JIT is the need for reliable, efficient and flexible suppliers since the company operating under JIT will keep minimum raw material stocks and will need continuous delivery of raw materials whenever needed, in short time intervals if need be.

[11] A Study on Total Quality Management and Lean Manufacturing: Through Lean Thinking Approach, https://www.researchgate.net/publication/267409057_A_Study_on_Total_Quality_Management_and_Lean_Manufacturing_Through_Lean_Thinking_Approach, (January 3, 2017).

Conclusion

When it comes to quality control, companies should focus on prevention rather than detection towards quality errors. Detection can happen only after the final output has taken place and prevention can help the company fix errors at earlier stages which saves time, money, and effort. The American gurus of quality management Deming, Muran and Crosby all came to the conclusion that TQM depends on meeting the customers' requirements, the senior managements' actions have a direct effect on quality issues, prevention is more efficient than inspection and that it is more important to set goals and chase them.

Total quality management is not something we can impose on a company from outside. The company should be willing to adopt TQM, internalize it and stay fully committed throughout the organization. Since TQM first occurred it has developed, evolved and acquired many other concepts making it a complete quality management philosophy. TQM, together with lean production and JIT with strong support and commitment from the senior management, good understanding from the employees can bring significant improvements to the firm while reducing costs, creating more value. Toyota is a good example of how TQM, lean production and just-in-time production can turn a moderate sized company into a global giant provided that strong will and commitment exists.